Appendix A: Search Strategies

Appendix B: Tables

Appendix C: Sensitivity Analysis – Annual Net Cost Per Tooth

APPENDIX A: SEARCH STRATEGIES

Database: PubMed (NLM)

Date Searched: 11/20/2014

Results: 214

Search Strategy:

Limit to (2000/01/01"[PDat] : "2015/12/31"[PDat])

1

economics"[mesh] OR economic* OR "Cost-Benefit Analysis"[Mesh] OR "cost"[Title/Abstract] OR "benefit"[Title/Abstract] OR "utility"[Title/Abstract] OR "Quality-Adjusted Life Years"[Mesh] OR "qaly"[Title/Abstract] OR "cost effectiveness" OR "cost effective" OR "efficiency"[Title/Abstract] OR "dollar"[Title/Abstract] OR "dollars"[Title/Abstract] OR "Efficiency"[Mesh]

2

("pit and fissure sealants"[mesh] OR ("fissure" and seal*) OR ("dental" and sealant*) OR ("resin" and sealant*) OR (resin* and sealant*) OR (compomer* AND sealant*) OR (composite* and sealant*)

3

(sealant* AND ("glass ionomer" or "glass ionomers" or "glassionomer" or "glassionomers" OR "glass ionomer cements"[mesh] OR "resins, synthetic"[mesh]))

4

2 OR 3

5

1 and 4

Database: EconLit (EBSCOHost)

Date Searched: 11/20/2014

Results: 153

Search Strategy:

Limiters - Published Date: 20000101-20141231

Search modes - Boolean/Phrase Interface and SmartText Searching - Advanced Search

S6 S1 OR S2 OR S3 OR S4 S5

S5 resin AND sealant* AND (dentist*or dental* or tooth or teeth or caries)

S4 (pit and fissure sealant*) AND (dentist*or dental* or tooth or teeth or caries)

S3 ((“compomer sealant*”) OR (“composite sealant*”)) AND (dentist* or dental* or tooth or teeth or caries)

S2 (“glass ionomer*” OR glassionomer*) AND (dentist* or dental* or tooth or teeth or caries)

S1 "dental sealants"

Database: SSCI (Social Sciences Citation Index)

Date Searched: 11/21/2014

Results: 19

Search Strategy:

Limit to 2000-2014

#10 #1 AND (#2 OR #3 OR #4 OR #5 OR #6 OR #7 OR #8 OR #9)

#9 TOPIC: ("synthetic resin*") AND TOPIC: sealant* AND TOPIC:(dental or dentist* or tooth or teeth)

#8 TOPIC: (composite* near/4 sealant*) AND TOPIC:(dental or dentist* or tooth or teeth)

#7 TOPIC: (resin* near/4 sealant*) AND TOPIC:(dental or dentist* or tooth or teeth)

#6 TOPIC: (dental near/3 sealant*)

#6 TOPIC: (fissure* near/6 seal*) AND TOPIC:(dental or dentist* or tooth or teeth)

#6 TOPIC: (pit and fissure sealant*) AND TOPIC:(dental or dentist* or tooth or teeth)

#5 TOPIC: ("glass ionomer*" or glassionomer*) AND TOPIC:(dental or dentist* or sealant* or tooth or teeth)

#4 TOPIC: (composite sealant*) AND TOPIC:(dental or dentist* or caries or clinical trial*)

#3 TOPIC: (compomer sealant*) AND TOPIC:(dental or dentist* or caries or clinical trial*)

#2 TOPIC: (pit and fissure sealant*) AND TOPIC:(dental or dentist* or caries or clinical trial*)

#1 TOPIC: cost OR TOPIC: costs OR TOPIC: economic* OR TOPIC: efficiency OR TOPIC: utility OR TOPIC: benefit* OR TOPIC: qaly OR TOPIC: “quality adjusted life years” OR TOPIC: dollar*

Database: CRD-York

Date Searched: 11/21/2014

Results: 30

Search Strategy:

NHSEED FROM 2000 TO 2014

(Economic evaluation:ZDT and Bibliographic:ZPS) OR (Economic evaluation:ZDT and Abstract:ZPS)

1 ("dental sealants")

2 (pit and fissure sealant*)

3 (compomer and sealant*)

4 (resin and sealant*)

5 (resin cements)

6 (pit and fissure sealants)

7 (glass ionomer*)

8 (glassionomer*)

9 (fissure and sealant*)

10 (composite and sealant*)

11 (tooth or teeth or demineral*ation or caries or dental or dentist*)

12 11 and (2 or 3 or 4 or 5 or 6 or 7 or 8 or 9 or 10)

13 1 or 12

Database:JSTOR

Date Searched: 11/21/2014

Results: 92

Search Strategy:

Full text limited to 2000-2014

Economics journals subset

"dental sealant*"

(pit and fissure sealant*) AND (tooth or teeth or demineral*ation or enamel or caries or dental or dentist*)

(compomer and sealant*) AND (tooth or teeth or demineral*ation or enamel or caries or dental or dentist*)

(resin and sealant*) AND (tooth or teeth or demineral*ation or enamel or caries or dental or dentist*)

(resin cements) AND (tooth or teeth or demineral*ation or enamel or caries or dental or dentist*)

(glass ionomer*) AND (tooth or teeth or demineral*ation or enamel or caries or dental or dentist*)

(glassionomer*) AND (tooth or teeth or demineral*ation or enamel or caries or dental or dentist*)

(fissure and sealant*) AND (tooth or teeth or demineral*ation or enamel or caries or dental or dentist*)

(composite and sealant*) AND (tooth or teeth or demineral*ation or enamel or caries or dental or dentist*)

[Note: Each line of search was run separately and then added to EndNote, where duplicates were removed.]

APPENDIX B

Appendix B Table 1. Description of Included Studies

Author, Year Study design Economic Method	Study location Sample size Population characteristics Time horizon	Intervention description	Effect size	Program costs (2014 US$)	Direct medical costs averted Productivity losses averted (2014 US$)	Full economic summary measure (2014 US$)
Arrow et al., 2000[37] NA Resource costs[a]	Australia; 71 children 6-year-old school children 1-time application	School dental therapist placed 3.1 glass-ionomer sealants per child; 4 handed delivery[b]; sealants not maintained	NA	1994 AU$ were converted to 1994 US$ using purchasing power parity conversion factor from the World Bank (1US$=1.30 AU$). The 1994 US$ were converted to 2014 US$ using Consumer Price Index for Dental Services (441/197.1). Per child Labor cost (did not include time for screening or barrier changes; 3 minutes per tooth)=$7.42 Supplies=$2.44 Did not report capital, travel, or overhead costs.	NA	NA

[a] Cost-minimization analysis of 2 interventions, sealants and topical fluoride vs. professional tooth cleaning and oral health education. Only information of sealant costs were used for economic review.
[b] 4-handed delivery means that operator and assistant placed sealants.

Bertrand et al. 2010[38] Economic model Resource costs; Cost effectiveness Cost effectiveness of SSP	Quebec, Canada 78,732 children 8-year-old children: 71.55% were considered high-risk. Decay incidence ranged from 0.1% (13-year-olds) to 11.44% (8-year-olds) in the low-risk population and from 4.5% (14 years) to 24.44% (8 years) in the high-risk population. 10 years	Compared offering sealants at no charge in private clinics ('private') to offering sealants at no charge in both private clinics and schools ('school')[a]. Sealants applied to first permanent molars after complete eruption. Average of 3.14 surfaces sealed per child. 4-handed delivery used in the school setting. Reseal 3.91%/ year in school setting. In private setting, reseal rate was 100% until age 10 years and then 3.91%.	For this review, the per child incremental health outcome of 1.48% increase in caries-free children was calculated as the difference in averted cavities between the school and private programs, divided by number of children.	$149.99 per child; $115.33 labor, $18.09 supplies, $9.48 travel, $7.11 other. Costs for sealants delivered in 'private' were from the Fee Guide and Description of Dental Treatment Services. Costs reported in 2008 Canadian$, converted to 2008 US$ using purchasing power parity rates from the World Bank, further converted to 2014 US$ using Consumer Price Index for Dental Services (441/281).	Direct medical and productivity losses converted to 2014 US$ in same manner as intervention costs. For this review, an incremental net cost of -$30.76 was calculated as the total cost of the school-based program minus total cost of the private program, divided by number of children. Difference in per child productivity losses between 'private' and 'school' strategies was $44.20. To estimate difference in restoration costs per child, reviewers assumed per child sealant costs were the same for both strategies. Although initial placement costs per child were 2.5% higher under 'private' strategy, reviewers could not estimate difference in intervention costs over	Offering sealants free of charge in school settings as well as clinical settings saves $30.76 per child.

					study horizon because of insufficient information to estimate sealant replacement costs for later years. Because more children were sealed under 'school', sealant cost per child was $20.7 higher than for private. Difference in restoration costs per child between 'private' and 'school' would be $7.1.	

[a] Study also included strategy of providing sealants free of charge only to high-risk children in school settings. Reviewers did not include this strategy as sealant prevalence among high-risk children was lower than for the other strategies. One rationale for the Task Force's recommendation of school sealant programs was that they increase sealant prevalence among school children.

Bhuridej 2007[39] Longitudinal cohort[a] Net cost to Medicaid	Iowa, U.S. 2,411 teeth sealed; 6,117 not sealed 6-year-olds continuously enrolled in Iowa Medicaid who turned 6 between 1996 and 1999 (children had to be enrolled for at least 2 years) 18% of non-sealed teeth received restorations over 4 years 4 years	Sealants delivered in dental office.	Analysis conducted at tooth level for each first permanent molar. Reduction in probability tooth received restoration attributable to sealant ranged from 58% to 75%. Average reduction for four first molars was 64%. Obtained quality adjusted tooth year (QATY) weights for tooth states, sound=1, restored =0.81, and	Cost per sealant estimated from national survey data of dental fees. Costs reported in 2001 US$ converted to 2014 US$ using Consumer Price Index for dental services (441/269).	Benefit measured by averted treatment cost where reduction in restorative services taken from Medicaid claims data and cost of treatment estimated from national survey of dental fees. Benefit converted from 2001 US$ to 2014 US$ in same manner as intervention cost. Reviewers estimated productivity losses to calculate net-cost to society.[b]	Costs and outcomes discounted at 3% annual rate Net cost per first molar using national fee data ranged from $5.54 to $9.39 with average value of $7.43 (median=$7.40) Net cost per first molar using Medicaid fees in sensitivity analysis ranged from $3.93 to $16.07 with average value of $7.95 (median=$5.90) Net cost per gained QATY ranged from $316.4 to $720.7 with average of $476.40 Net cost to increase QATY from restored to sound state ranged from $62.9 to 136.9 with average of $90.9

			extracted =0 from published study. Study assumed that all teeth not receiving restoration were sound.			

[a] Restoration receipt obtained from longitudinal analysis of Medicaid claims data, costs estimated from American Dental Association survey data, and quality adjusted tooth year weights obtained from literature.

[b] Productivity losses estimated using average time for dental visit using American Dental Association survey data (1.5 hours) at median hourly wage of $32.31 multiplied by the averted outcomes.

Calderone and Mueller 1983[47] NA Resource costs	New Mexico 4,593 Students in grades 2–3 and 5–6 One-time placement of sealants	Dental hygienists applied Delton sealant to molars and bicuspids -No maintenance[a]; On average, sealed 4.24 teeth per child	NA	Study in original economic review. Converted costs from 1997 US$ to 2014 US$ using CPI for dental services 441/226.6) Costs included sealant materials, personnel, transportation, overhead, and capital equipment Per child: Labor cost $23.5 Equipment cost $3.89 Supplies cost $5.35 Travel cost $3.27 Total cost $36.02	NA	NA

[a] Converted to 1997 $US by multiplying reported value (average of monthly Dental CPI from September 1981 to May 1982)/Dental CPI for 1997.

Dasanayake et al. 2003[40] Longitudinal retrospective cohort Economic benefit; Net cost to Medicaid	Alabama, U.S. 2,077 children in sealant group, 5,631 in no-sealant group Children who were aged 5 to 7 years by October 1990 and continuously enrolled in Alabama Medicaid from 1990 to 1997 Annual attack rate of 0.048 (calculated at child level) 8 years	Children who had Medicaid claim for at least one sealant vs children with no sealant claim; reviewers estimated that study sealed 1.7 teeth per child by dividing sealant cost ($20) per child by average Medicaid fee for sealant ($11.96)	Difference in % of children receiving restorative care between children receiving and not receiving sealants was 0.23 percentage points	Reviewers discounted costs. Costs reported in 1990 to 1997 US$. Converted to 2014 US$ assuming in 1994$ using CPI for dental services (441/197.1) Sealant costs were $44.82 per child	Averted treatment costs, $71.52. Costs reported in 1994 US$ converted to 2014 US$ using Consumer Price Index for Dental Services (441/197.1). Productivity losses estimated by reviewers	From the Medicaid perspective, net cost was –$26.719 per child sealed and from societal perspective was –$36.41.

Garcia 1988[48] NA Resource Costs	Surveyed 5 state sealant programs 30,331 children Children in grades K-12	Sealants delivered in school setting; sealant material and personnel varied by state; At least one program used dental van	NA	Study in original economic review. Converted costs from 1997 US$ to 2014 US$ using CPI for dental services (441/226.6); Per child: Labor costs ranged from $32.87 to $77.26 Equipment (4% discount rate) costs ranged from $1.03 to $4.16 Supplies costs ranged from $5.27 to $7.73 Travel costs ranged from $0.41 to $3.33 Total costs ranged from $41.64 to $90.77	NA	NA

Griffin et al. 2002[41] Economic model Economic benefit	U.S. Time of first permanent molar eruption: aged 72–83 months. Annual caries increment per first molar is 0.0624 surfaces. 9 years	Comparison[a] of sealing all children (SA) to sealing no children (SN). Sealants applied in dental office to first permanent molar at time of eruption. One tooth sealed per child. Autopolymeri-zing resin-based sealant, no re-sealing.	Sealant retention rate of 80% in the first year, 97% years 2–9, and no benefit thereafter. 0.28 averted caries.	Sealant costs $48.17 per tooth. Costs estimated from national survey of dental fees. Assumed no screening costs. Costs reported in1999 US$ converted to 2014 US$ using Consumer Price Index for Dental Services (441/281).	Averted treatment costs, $36.55, estimated by multiplying averted cavities by cost of restoration (national survey of dental fees). Costs reported in1999 US$ converted to 2014 US$ using Consumer Price Index for Dental Services (441/281). Productivity losses estimated by reviewers	3% discount rate From the payer perspective, net cost is $11.61 per tooth sealed and $41.78 per averted caries.

[a] Study also included strategy of only delivering sealants to high-risk children. This strategy was not included in this economic review as Community Preventive Services Task Force in effectiveness review reported possible stigmatization of children when SSPs differentiate among children at the same school.

Klein et al. 1985[49] NA Resource costs[a]	National Dentistry Demonstration Project, 10 U.S. cities 10,566 children In grades 1, 2, and 5. 4 years	Applied light-cured resin sealant to permanent molars and premolars (average number of teeth per child was 10 teeth), which was reapplied up to 3 times as needed	NA	Study in original economic review. Converted costs from 1997 US$ to 2014 US$ using CPI for dental services 441/226.6) Costs (not itemized by resource category) include: personnel (dentist, dental hygienist, dental assistant, clerk), overhead, capital equipment,[b] and sealant Total annual cost per child $116.44	NA	NA

[a] Multi-site randomized controlled trial on effectiveness and costs of school sealant programs. For this review, only cost information was used. Findings on effectiveness were included in Community Guide review of effectiveness.
[b] Although study reported that capital costs were amortized it did not specify discount rate.

Marino et al. 2012[42] Economic model Resource costs; SSP cost effectiveness; Economic benefit	Chile 80,000 children Hypothetical 6-year-old children 6 years	Sealants applied in a community-based center, by a dentist. Four first permanent molars sealed per child. Resealing rate of 10% total over the 6-year period.	1.11 averted caries per child	Sealant cost $33.36 per child. Costs obtained from Ministry of Health fee schedule. Costs reported in 2009 Chilean$, converted to 2009 US$ using purchasing power parity rates from the World Bank, further converted to 2014 US$ using Consumer Price Index for Dental Services (441/281). Labor costs $7.19, supplies $25.92, travel $0.24.	Averted treatment costs estimated by multiplying averted cavities by cost of restoration (from local rates). Costs reported in 2009 Chilean$, converted to 2009 US$ using purchasing power parity rates from the World Bank, further converted to 2014 US$ using Consumer Price Index for Dental Services (441/281). Averted productivity loss calculated from 1.5 hours of lost productivity at minimum wage per decayed tooth plus public transportation costs.	3% discount on costs but not outcomes. Net cost per child $14.58. Net cost per averted cavity $13.13.

Morgan et al. 1998[50] NA Resource costs[a]	Victoria, Australia; 250 children 12- and 13-year-olds in grade 7 from low-income families attending five schools (only schools with above average levels of caries prevalence). 3 years	Sealed second permanent molars and provided weekly fluoride mouth rinse. Sealants repaired every year	NA	Study in original economic review. Converted costs from 1997 US$ to 2014 US$ using CPI for dental services (441/226.6) Annual costs per child: Labor costs $25.35 Equipment $3.08 Supplies $1.64 Travel $1.43 Other $3.86 Total $35.35	NA	NA

[a] Study examined cost-effectiveness of sealants but only used findings for costs in this review.

Quinonez et al. 2005[43] Economic model Economic benefit	U.S. Hypothetical population representing U.S. 20% of children were high-risk, with a 24.0% annual attack rate; 80% were low-risk with 4.0% annual attack rate 10 years	Sealed permanent first molars in dental office; Re-sealing rate was 3.91% annually; Analysis conducted at tooth level so all costs and benefits are per tooth.	Cumulative retention was 90% after first year and 53% by year 10. Model assumed that tooth with retained sealant could not develop caries (i.e., sealants 100% effective).	Cost per sealant estimated from national survey data of dental fees. Costs reported in 2002 US$ converted to 2014 US$ using Consumer Price Index for Dental Services (441/281).	Averted treatment costs estimated by multiplying averted cavities obtained from Markov model by cost of restoration (from national survey data of dental fees). Costs reported in 2002 US$ converted to 2014 US$ using Consumer Price Index for Dental Services (441/281). Analysis conducted from payer perspective so did not include productivity losses and could not be estimated by reviewers as health outcome was caries-free months.	Costs associated with sealant and restorations calculated for 3 delivery strategies: Seal all (SA) children $85.69 Seal no (SN) children $106.88 Seal only high-risk (SHR) children $84.43 Incremental cost: Seal All vs Seal None -$21.19 (cost saving to seal all) Seal High Risk vs Seal None -$22.44 (cost saving to seal high-risk children)

Scherrer et al. 2007[44] Economic model Resource costs; Cost effectiveness SSP Economic benefit	Wisconsin, U.S. 10,697 tooth surfaces (2,670 children) Annual attack rate 0.132 9 years	Sealed permanent first molars in SSP; 4-handed delivery, general supervision, 102 school events of average size 43 children. Average of 4 surfaces per child.	Retention rate of 90% annually. Model assumed that tooth with retained sealant could not develop caries (i.e., sealants 100% effective). 1.85 averted caries per child.	Cost per sealant estimated from program data. Costs reported in 2003 US$ converted to 2014 US$ using Consumer Price Index for Dental Services (441/281). Labor costs $33.57, equipment costs $0.38.	Averted treatment costs estimated by multiplying averted cavities by cost of restoration (Medicaid reimbursement for state payer perspective and Wisconsin survey data of dental fees for social perspective). Costs reported in 2003 US$ converted to 2014 US$ using Consumer Price Index for Dental Services (441/281). From societal perspective, productivity losses of 1.5 hours at Wisconsin minimum wage (parent's time).	3% discount rate used. Social perspective: net cost of –$166.81 (cost saving to seal).

Weintraub et al. 2001[45] Longitudinal retrospective cohort Economic benefit; Net cost to Medicaid	North Carolina, U.S. 3,600 children in sealant group and 11,838 children in not sealed group Children aged 5–7 years, enrolled in North Carolina Medicaid Annual attack rate Low risk 0.046 Medium risk 0.119 High risk 0.161 Study had 8 years (reviewers used 5 years as difference between sealed and not sealed peaked at year 5)	Children receiving at least one sealant on permanent first molar in dental office vs. children who received no sealant on first permanent molar. Separate analysis conducted for each first molar. Divided children into three risk groups: low (no prior molar restoration); medium (1 prior molar restoration); and high (2 or more prior molar restorations)	Discounted averted restorations per child: 0.10 for low risk, 0.27 for medium risk and 0.37 for high risk	Costs reported in 1992 US$. Converted to 2014 US $ assuming in 1994$ using CPI for dental services (441/178.7) Sealant costs were $28.63 per tooth No discounting	Discounted Averted treatment costs were $5.10 for low risk, $21.65 for medium risk and $34.92 for high risk. Costs reported in1992 US$ converted to 2014 US$ using Consumer Price Index for Dental Services (441/178.7). Productivity losses estimated by reviewers	Reviewers discounted outcomes and costs. From the Medicaid perspective, net cost is $23.53 (low risk), $6.97 (medium risk) and –$6.39 (high risk) per tooth sealed. From societal perspective, net cost is $18.59 (low risk), –$5.99 (medium risk) and –$24.41 (high risk) per tooth sealed.

Werner et al. 2000[46] Economic model Resource costs; Cost effectiveness; Economic benefit	Michigan, U.S. 800 children, 2,500 tooth surfaces Children aged 6-7 years from high-risk schools Information in article indicated that all sealed teeth (3.1) would have developed caries over 6 years without sealants. Reviewers estimated annual attack rate assuming that number of sound teeth at 6 years was 0.0001, which yields annual attack rate of 85.3%. 6 years	30% sealant effectiveness,18 minutes sealing time per tooth surface Sealant placed at school-based program, screening by dentist with sealant delivery by dental hygienist and dental assistant	0.94 averted caries per child; value after authors discounted at 3% was 0.93	Costs reported in1991 US$ converted to 2014 US$ using Consumer Price Index for Dental Services (441/167.4). Labor costs $149.52, equipment costs $1.27, and supplies $12.37. Total cost per child $163.16. Cost not discounted	Reviewers estimated averted treatment costs by multiplying discounted averted cavities by average cost of amalgam restoration in 2014 US$ Productivity losses estimated by reviewers	Reviewers discounted outcomes and economic benefit. From societal perspective net cost $1.63 per averted cavity.

NA, not available; QATY, quality-adjusted tooth year; SSP, school sealant program; CPI, Consumer Price Index

Appendix B Table 2. Annual Economic Benefit Per Tooth, Annual Attack Rate, Effectiveness, and Annual Averted Restorations

Study	Annual benefit per tooth	Annual probability caries (no sealant) (%)	Effectiveness (%)	Annual averted rest (%)	Years
Marino[42]	$0.78	NR	50.00	NR	6
Griffin[41]	$5.56	6.24	57.20	3.57	9
Scherrer[44]	$6.50	13.20	38.74	5.11	9
Dasanayake[40]	$6.08	4.88	68.40	3.34	8
Quinonez[43]	$7.33	8.00	53.04	4.24	10
Weintraub[45] low-risk	$2.01	4.61	53.26	2.45	5
Weintraub[45] medium-risk	$6.92	11.96	62.60	7.49	5
Weintraub[45] high-risk	$10.61	16.13	70.66	11.39	5
Median (using Weintraub medium-risk)	**$6.29**	**8.00**	**55.12**	**4.24**	

NR, not reported in study; rest, restoration.

Appendix B Table 3. Annual Net Cost per Tooth Sealed Calculated from Median SSP Cost and Median Economic Benefit

Year	Cost	Benefit	Net
1	$11.64	$6.10	$5.54
2[a]	—	$5.93	–$5.93
3	—	$5.75	–$5.75
4	—	$5.59	–$5.59
Total	$11.64	$23.37	–$11.73

[a]Becomes cost-saving at 2 years.
SSP, school sealant program

Appendix B Table 4. Net Cost of Delivering Sealants to Medicaid-Enrolled Children

	Net Cost to Medicaid	Net Cost to Society[a]
Dasanayake[40 b]	–$26.71	–$36.41
Weintraub[45] low risk	$23.53	$18.59
Weintraub[45] medium risk	$6.97	–$5.99
Weintraub[45] high risk	–$6.30	–$24.41
Bhuridej[39] (UL1M)	$5.41	$0.32
Bhuridej[39] (UR1M)	$6.39	$0.09
Bhuridej[39] (LR1M)	$16.07	$10.93
Bhuridej [39] (LL1M)	$3.93	–$2.12

[a]Productivity losses estimated by reviewers.
[b]Dasanayake costs are per child.

1M, first molar; L, lower arch; L, left; R, right; U, upper arch

APPENDIX C. SENSITIVITY ANALYSIS – ANNUAL NET COST PER TOOTH

One- and two-way sensitivity analyses were conducted to examine the effect on findings from imputing productivity losses for studies that did not present them, including studies with outlier values, limiting school sealant program (SSP) benefit to 4 years, and including non-U.S. studies.

One-Way Sensitivity Analyses-Annual Economic Benefit Per Sealed Tooth

Information from six studies was used to estimate economic benefit. For three of these studies that did not include productivity losses in their calculations of economic benefit,[40,41,45] productivity losses were estimated and added to averted treatment costs to obtain total economic benefit. When estimated productivity losses were allowed to decrease to 50%, 25%, and 0% of the estimated value, the economic benefit per tooth decreased from $6.29 to $5.67, $5.26, and $4.84, respectively. Finally, if the one non-U.S. study[42] that had an outlier value for benefit ($0.78 per tooth per year) were excluded, median economic benefit increased to $6.50.

One-Way Sensitivity Analysis – Net Cost Per Sealed Tooth

Using the median annual benefit and the one-time median cost per tooth sealed, the net cost of SSP over 4 years was estimated to be –$11.73 (Appendix B Table 3, above). When the time horizon was expanded to 8 years, the net cost decreased to –$32.50.

Two-Way Sensitivity Analysis – Net Cost Per Sealed Tooth

The net cost of an SSP under worst-case (median cost and benefit took on their highest and lowest values, respectively) and best-case (median cost and benefit took on their lowest and highest values, respectively) assumptions was estimated. Median cost was highest when all studies were included ($11.64) and lowest when the two studies with above-average time to

place sealants[38,46] were excluded ($8.49). Median benefit was highest when only U.S. studies were included and productivity losses were imputed ($6.50), and lowest when all studies were included and productivity losses were not imputed ($4.84). Net cost increased to –$6.35 under worst-case assumptions. In addition, SSP did not become cost saving until 3 years after implementation compared to 2 years under base case assumptions. Under best-case assumptions, net cost decreased to –$12.50.

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